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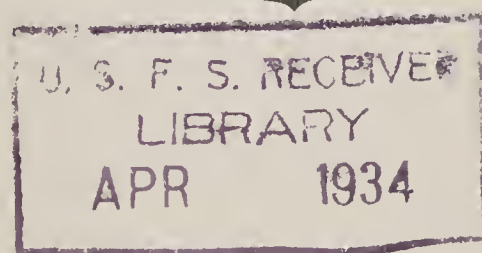
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EXECUTIVE AND PERSONNEL  
**MANAGEMENT**  
ON THE  
NATIONAL FORESTS



A MEDIUM FOR THE EXCHANGE OF IDEAS AND  
EXPERIENCES BY OPERATING EXECUTIVES  
FOR THE BETTERMENT OF THE  
**SERVICE**

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## TRAINING ON THE JOB

*by*

STANEY F. WILSON  
Regional Forest Inspector

Although the first Forest Service training camp was held in Region 3 in 1909, and from even further back there have been definite training efforts in the form of details, assigned studies, meetings and conferences, systematic and continuous training effort on a large scale dates from only about 10 years ago. In the earlier years the new man was placed as an assistant on a ranger district or in the Supervisor's office, and if he developed properly he was passed on to greater responsibilities. Many good men developed, some fell by the wayside, and in numerous cases average and mediocre men were retained, but were assisted so little that they became problems later on. Enlarged units and decreased man power have resulted in greater emphasis on weeding out the unfit and in increasing the usefulness of the rest. Training camps have raised morale. They and the study courses have added to knowledge, have emphasized the value of training, and, to some extent, have improved the quality of work done on the ground. Our greatest remaining need *is training on the job on the Forests themselves*. Only through such training can probational appointees be properly appraised and prepared and the permanent force adequately improved.

### *What Has Been Done in the Past?*

The more important of the methods used in various places in Region 3 are given below:

#### *1. As Assistant Ranger*

For years the new appointee from the eligible list was used as an assistant ranger on a heavy district or as a ranger at large helping out on various districts. In this way we have always had men in training for district ranger positions when vacancies occurred. There are, however, disadvantages to this system. Few district rangers proved to be really good at breaking in new men, and some fell down badly. Too often the assistant was merely a chore boy, and too seldom did he secure good all-around training (including office work) and develop a proper sense of responsibility. The "floater" was more apt to get diversified training, but often he was given too much odd-job and improvement work and not enough real ranger training.

#### *2. Through Inspection*

In some places supervisors and assistants have made it a practice to spend two weeks or more on a ranger district and, for part of the time at least, actually do work with the ranger. The advantages of this scheme are numerous. The work is accomplished, the supervisory officer "keeps his hand in," the ranger gets the benefit of his superior's experience and point of view, and the superior gets a better notion of just what the work on the district is and how the ranger handles it. Unfortunately too little of this work has been done, and even where it has been the teaching has not always been all that could be desired.



### 3. *Special Details*

It has become "good practice" to have the ranger work with the grazing reconnaissance party while it is on his district, thus giving him the advantage of special training and at the same time making his local knowledge available to the crew. There is the further advantage that the ranger develops much more interest in the reconnaissance results because he has had a hand in the work. In the last few years rangers have been detailed to reconnaissance parties on other Forests solely for the training involved.

Quite commonly P. R. starts a "movie" campaign with a ranger as assistant, trains him, and when he is able to handle the job turns the rest of the trip over to him.

The same ideas might well have been extended to the other Branches more than they have been in the past. The ranger could gain good experience working with a timber survey or land exchange party.

It used to be common practice to detail young technical men to the Experiment Station for a month or six weeks. Besides training in Research methods, they usually acquired a sympathetic feeling toward the work of the Station, which never left them in their later years of administration.

Project sales have been a training ground not only for new salesmen, but, in many cases, for rangers as well. Valuable experience in sale administration has been obtained.

Rangers have been detailed to the supervisor's office as Acting Supervisor for a week or two, partly for training, partly to get a line on their ability as possible deputy material. An important result has been curing the ranger of sending in incomplete reports. After trying to act on such reports made by others he learns the need for submitting complete information.

### 4. *Group Work*

Group work has been practiced, at least to some extent, on every Forest with which I am familiar. Perhaps the most usual case is the concentration of forest officers on large fires, mainly to extinguish the fires as soon as possible and with little thought of the inevitable training feature. On some Forests group work has been developed to a high degree, and, while primarily the object has been to get the work done, it has been found possible to secure at the same time excellent training as well as development of the Forest esprit de corps. In this Region group work has been successfully used on northern Forests, where the field season is short, as well as on southern Forests, where it is practically year long. While the slack season has been usually favored for group improvement work, there have been other jobs which have had to be done during busier times, if they were done at all. On most jobs the group can accomplish more than can the sum of the individuals. The average ranger has been found more than willing to help his neighbors, providing he can secure needed help occasionally on his own district. In two years on one Forest, ranger crews worked on seven of the eight ranger districts and cleaned up a great deal of work that could not otherwise have been accomplished. The training feature was not neglected. In my experience the following classes of work have been done by ranger crews:

Construction and maintenance of telephone lines  
Marking timber (sample plots)  
Calipering cut-over areas  
Brush burning  
Roundup counts  
T-12 roundups  
Guard training  
P. R. campaigns  
Surveying jobs

Tree planting, prairie dog extermination and insect control have been suggested as further possibilities.

Besides using rangers, the office force can often be worked in to advantage on the group work. An executive assistant may become more valuable from such experience, and there are some jobs upon which the women clerks can help. A staff G specialist may be given excellent Forest Management training—and vice versa.

### 5. *Training Camps*

Training through doing is usually stressed at training camps, but generally the jobs are done for the sake of the training rather than because they need doing on their own account. The same thing has been true of meetings of various kinds.

#### *What Must We Do in the Future?*

Training is becoming increasingly important, and, what with decreased personnel handling a larger volume of work and less opportunity of having understudies in waiting, this trend should continue. While we shall continue to hold our camps, and perhaps shall have to arrange for some assistant positions for training rangers, our most productive field seems to be the *logical expansion of training on the job*. Good work has been done in some places in the past, but in general such training has been spotty and haphazard. We need planned teaching on the Forests—planned so that it will be done, and planned so that it will be done well. Kep has long emphasized that the trainee's problem must be analyzed:

What does he do?

What must he know?

He has told us that to teach properly we must:

1. Demonstrate.
2. Have the trainee do the job under direction.
3. Test—Have the trainee do the job "on his own."

Probably in the past, where we have trained at all, we have fallen down hardest in taking too much for granted—particularly in omitting the tests. Our problem is to adapt methods proved in the past to our present needs, to the end that each man may be systematically and adequately taught the fundamentals of his job. Elaboration of this subject might easily run into many pages. Carefully worked-out special details of the kind mentioned above and well-planned group work offer large opportunities. It is my opinion, however, that the most fertile fields lie in the development of "training through inspection" and in the deliberate planning for the training of individuals by their superiors—usually



the supervisor and members of his staff. This means determining, through analysis, what the individual needs to know that he doesn't know already, and going out and teaching it to him. What should be taught, and how the teaching should be done, can be worked out if we decide that we want to do it. The difficult part will be to get the supervisor to put the teaching into effect.

#### *How Can We Stimulate the Supervisors to Train?*

Although this is the particular part of my subject on which "Kep" based his request for an article, I approach it with diffidence. I am afraid that the supervisor is already being "stimulated" to death. When one has taken too many doses of medicine an additional one may not prove very effective. Too many of us are pushing our lines. Too often have we given the supervisor the Army prescription: "In addition to your other duties, you will do the following:" A supervisor expressed himself this summer about as follows: "It is easy to say that a new administrative study will not amount to very much, that the ranger can actually do the work in six hours, for example. Perhaps he can. But the ranger is not naturally of scientific bent, and what is too often forgotten is the time necessary to get him in the proper frame of mind to do the actual job—the instruction, the planning, and the constant nagging before the job is finally finished."

It is noticeable that some Forests develop good men—both for their own organization and for transfer—while other Forests have to be helped out. While there are a number of factors involved, two of the important ones seem to be:

1. Character and attitude of supervisory personnel.
2. Time available for the training work.

The first is pretty obvious. The second is not so generally appreciated. In a number of cases outstanding training work has been done on so-called "light" Forests. This should not be wondered at. We do not start a new man on our busiest ranger district. He must be put where he has time to learn. By the same token, we need someone with time to teach him. The supervisor, with his nose always to the grindstone, who is overwhelmed with business and routine, is seldom able to do the less immediately pressing things—perhaps he doesn't even see them.

My plan for "stimulating the supervisors" follows:

1. Give the handling of personnel a high priority. It is one of our major jobs, though it seems that we seldom realize that fact. Less important things clamor for immediate attention—and usually get it. We must thoroughly sell the idea that improvement in personnel means better work all along the line.
2. Clarify our objectives (avoid "mixing our signals," as Hutchinson puts it).
3. Plan training on the job in accordance with the importance of this work. We have the basis in work done in the past and in accepted methods of teaching.
4. Besides emphasis, provide adequate time to do the work (by letting up elsewhere).
5. "Follow through." If the job is worth while, go on with it. This means continued emphasis and time allowance, and a check and recording of results.



## REVIEWS

*Training on the Job*: Chapter 14 from "Personal Leadership in Industry,"  
by Craig and Charters.

Many failures in executive work result from insufficient attention to the importance of training on the job. The position of an industrial leader today is in essence a teaching position. Some aspects of training may be functionalized, but in general the man who directs others must be constantly at hand to demonstrate new methods and correct mistakes. In this way they tap new sources of improved efficiency.

In order to get at this subject in a concrete manner, a group of 150 engineering students were asked to give their experience with the poorest teaching foreman they ever met, and also with the best. The following, taken from their replies, is used to illustrate the problem:

"The poorest trainer I ever had was a man with a brusque manner of speech. Although he was thoroughly familiar with his task, he had considerable difficulty in imparting his knowledge to a new man. As a result, he hastily went through some semblance of an explanation of the new task, performed the task while I watched, not slowly, step by step, but at the rapid pace at which he himself was accustomed to perform the operation. Of course, as a new man, I was able to learn very little from this demonstration, and was left to my own resources to develop a method of performing the task."

Another foreman started to show the student how, found he had forgotten himself, so left with the instructions to "do the best you can." The foreman who fails because he doesn't know the job is rare. More often they fail because they do not know the *instruction* job.

Another student said: "I reported to work according to instructions. The foreman greeted me with, 'Are you here to work?' I told him that I was. He gave me a small drill, pointed to a drill press and to a pile of iron rods, and said, 'Get to work. Holes about a quarter inch from the ends.' At the end of the forenoon he came around, picked up a few pieces that were completed, and gave me a wonderful 'bawling out.' The bawling-out type of foreman is not so common as he once was."

One foreman had his new man just "look around" for half a day to see how things were done. He was then given work, with no instructions, and of course made many mistakes, and spoiled material.

These and other examples illustrate the common mistakes of poor trainers. They do harm in two directions: they cause loss of time, and waste of material, both an expense to the management. They lower the quality of the man through the development of poor work habits, and of an antagonistic attitude and misunderstanding of industry.

An analysis of the reports showed that a number of points were mentioned over and over again. The six occurring most often must represent essential factors worth careful consideration. These are:

1. The *attitude* of the executive. The poor executive "became disgusted and

walked away." "He gave me a terrible bawling out." "His lack of fairness prejudiced me against him." "This one let his dignity hurt him," and so on. The good trainer, "instead of telling me how dumb I was, commended me on the way I was trying." "He had the interest of his men at heart." "His corrections were kindly and helpful." "In his dealings he had a sense of fairness and patience." In fact, the reports all indicate that the attitude of the executive is reflected in the men, and is closely related to the quality of work done.

2. *Analyze the job.* A good attitude alone won't do the work. The foreman must analyze his job. Many failed because, while they could do the job, they did not know just how they did it, the *operations* it took to do it. The good executives knew the *difficulties* of the new men and how to overcome them. They also knew that many men must *see* and *hear* in order to learn. These did not depend on the written instructions alone.

3. *The demonstration.* The reports show that the boys were particularly resentful of the instructor who does not demonstrate. The speed of the demonstration must be slow. One said, "The worst shop teacher I ever worked under took pride in his speed." The demonstration should not only be slow enough for the new man to see how it is done, he wants also that the demonstrator explain why it is done the way it is, the danger points where things may go wrong and how to avoid them. Also, he does not want to be shown too much at one time.

4. *The trial.* Some instructors stop at this point and think the training job is done. But the foreman who found favor in the reports, at this point, gave the new man a chance to try the work for himself. No matter how well the demonstration has been followed, very few do it right the first time.

5. *Correction.* So the next step after the trial is the correction. "As the new man tries the job, the foreman watches him, shows him when he is wrong, lets him try again, makes corrections, and repeats the trial until it is done well enough for the foreman to leave him alone for awhile."

6. *Follow-up.* But the foreman must not stop even there. He should return "several times" and "at unexpected intervals." "He kept his eye on me until he saw that I could do the job."

Good training is not so difficult if systematically done. But there is nothing so futile as a reprimand for not having done something that one does not know how to do. One difficulty is to find out just what it is that the learner does not know. Few men will show their ignorance by asking questions. The test, or trial, is the only sure method. Practically all men will respond to understanding help. Retraining the old men in new methods is more difficult and takes more patience and time.

*Decentralized Employee Training:* By Dr. W. J. Donald, Partner, McKinsey & Company, New York. Published in "Mechanical Engineering," November, 1930, and in the "Handbook of Business Administration."

Training of employees is as old as the relationship of master and servant, but methods have changed with changes in industry, and recently have been influenced by developments in educational psychology.



The training of manual workers has always received most attention, but of late years the emphasis has been shifting to the "white-collar workers," and more recently to the managers of industry themselves, that is, to executive training. The reason for the shift is found in industry itself. While hand labor was largely relied upon in production, the amount of production depended directly on the quality of labor; but as the machine developed, the relative number of laborers decreased and the number of office workers and sales people increased. This brought with it the problem of training, and this need, particularly in selling, is constantly growing. The still more recent problem, that of training executives, primarily results from size. While organizations were small there was little conscious training of executives.

Meanwhile there was developing, unconsciously, a distinction between education and training. In the earlier industrial stage, education, in the sense of training for general life relationships, was largely a function of the master craftsman, but gradually this part of education was absorbed by the schools. This left to the supervisory function only training for the job on the job.

With the coming of large-scale operations training became more a necessity. As early as 1890 a few large companies had formed what were known as "corporation schools," the idea being that the training function formerly exercised by the supervisor or foreman should now be exercised by a department especially equipped to perform the training job. By 1913 the number of such schools had increased to such extent that a "National Association of Corporation Schools" was formed.

As the name, "Corporation School," implies, the tendency during that period was to follow the formalism of schools. Many of the instructors were secured from the schools, and brought with them the methods and point of view of those institutions. In addition, the executive who put up money for a training program wanted some visual evidence of that program. The most easily produced, as well as the most easily understood and accepted, evidence was that with which everyone was familiar: the classroom, the desk, the blackboard, the enrollment record, and other teaching paraphernalia. So, for a time, the school with its formal classes and classrooms held sway. But other Companies that did not go in for the school idea still did a lot of training, not as a formal program, but just because it was necessary to get the work done in the way it was wanted. The more formal teaching was urged upon the regular schools, many of which expanded their program to meet the new demands. This furthered the distinction previously mentioned that was growing up between education and training. In general the distinction is that education is general training for life relationships, while training is preparation for an occupational pursuit. This distinction, both in method and aim, was recognized in 1919 by a change in name of the national association of Corporation schools to "National Association of Corporation *Training*."

At about this time the "project method" of teaching was being emphasized. For teaching purposes a project may be defined as a problematic act carried to completion in a natural setting. Applied to business, this means that training should be carried on under natural conditions of responsibility, supervision, and incentive.



In addition, educational psychologists were emphasizing the idea that the learning process is not complete until it culminates in action. The weakness in much of the public school education of the past is that the pupil experiences no activity in connection with his acquisition of facts, and the learning process therefore remains a passive one. In industrial training these handicaps and restrictions are not present unless created in the separation of training from the job. For this reason the recent trend has been more and more away from formalized classroom training to decentralized training on the job.

This attitude toward training brings it back from specialized job and makes it again a definite function and responsibility of management. Today the idea is, in many progressive companies, that training is in fact a very large part of management. The president of one such company has said that a survey in his organization indicated 80 to 90 per cent. He regards the training of his immediate associates as the major part of his executive responsibilities. This is in marked contrast with the old idea that a major executive was one only because he had already learned all there was to learn.

This recognition of training as a management function best done on the job by line executives has not, however, done away with the training department. For if the executive is to train the men under him, he himself must be taught or trained in training methods. Very few are born trainers; but it is equally true that very few are incapable of becoming good trainers. In the training of executives to train, the same principle applies as in training the rank and file of employees. It should itself be training on the job, planned practice training under supervision. This parallels the method used in normal schools for training teachers by giving them supervised practice teaching in training schools.

Another function of the training department is to help in the preparation of instructional material, commonly called "instructional outlines." Without such outlines, or programs, training becomes hit or miss, subject to individual whims, and will not cover all phases in which training is needed. One phase in the preparation of the program is an analysis of the teaching processes in terms of difficulties of the executive in training his employees on the job for the job. This leads to the development of material on the techniques of training. The program is better understood and the responsibility accepted if its preparation is participated in by the executives, and technically more complete if participated in by the training experts. It seems to require the co-operation of both to produce a complete analysis of the situations in which training is needed.

Only one step is involved in teaching the executive to teach. This alone will not constitute a training program. A few hours of supervisory training will not remodel an executive permanently. Evangelistic treatment cannot be relied on. It requires continuous effort over a period of years to get a program into operation. Progress has been constant, but success would have been greater had there been more men who understood the processes involved. Employee training has, however, come to be recognized as a management problem, and the stage has arrived where the subject of training takes a very large place in all discussions of management activities.

*Scientific Management and Economic Planning*: By Dr. H. S. Person.

I am not going to attempt a review of this article, since it has been or will be sent to each of you. But at the same time I cannot pass up the opportunity to say something about it. It is a timely article by an internationally known student. It is timely because it discusses a subject which economists have said, for more than a year, was bound to come. Even those who do not believe in it believe it will be tried. It is now a part of the administration's program, and the indications are that their predictions will come true. This article comes nearer, I think, to giving a scientific basis for such planning than any of the other plans that I have seen.

Person claims that industrial planning on a national scale is not only possible, but unavoidable. It will come eventually as a natural inevitable result of a process already in development—a process not of imposing a method, but one of co-operative education. Further, he claims that the process will not stop with National planning, but that it must go on and become international. However, that does not concern us now.

The necessity back of this ever-widening circle of planning comes from the bottom, not the top. You plan a job, but you cannot carry out the plan for the job unless you plan the shop. In order to systematize the shop you plan the factory, and so on up to an ever higher field.

Have we not found this true in our own work? Take our timber plans. We have tried to stabilize production on a unit, but the unstable conditions in the industry prevent our fully carrying out our plans. We cannot cut the yield without a market. So the pressure is for planning beyond the unit, which eventually will mean the co-ordination of all units.

Or take our work in another line. We have planned the work on a ranger district. Rangers have at times said that the lack of plans for the Forest interfered with the plans on the district. So now we are planning the Forest. The Forest plans will demand Regional planning, and so on to the top and beyond. Anyhow, this is the theory. It sounds plausible. It is at least an interesting approach to the problem, and suggests a process worth watching. The time is scarcely ripe for it to work on a National scale, so we will probably first try something else, but if Person is right, it is bound to come. Can you see the process in development—see it coming?



## SUGGESTIONS FOR DISCUSSION

Our subject for discussion this month is, "How can we do a better job of training men on the job?" I say a "better" job advisedly, because we are doing a fairly good job now, and doing it all the time. As we recognized in our discussions three years ago, we do either planned, intentional training or less systematic, unintentional training—"training by absorption" was the term used at that time.

And not only have we been training in the past, we have been doing a really good job of it. The only way to judge the quality of our training is by the quality of its product, and in some manner we have developed a really high-class, efficient organization with well-trained executives from top to bottom. All of these men have been trained within our own organization. Then if that is true—and it is—why worry? Why change a system that is giving us good results?

The answer is that we are not the satisfied type of organization. Our outstanding characteristic is a desire for progress. We all know that while our organization is, in general, efficient, there are altogether too many individual cases each year where the action taken is not efficient. Then there are other cases where the action taken, while scarcely deserving to be classed as inefficient, is still lower in quality than we would have liked to see. That applies to our own work as well as to others—perhaps more so.

But besides work, there are men. We are a humanistic organization. We like to help the men with whom we work. Every old-time supervisor I meet tells me about a number of men, in the Service and out of it, who are making good, and whom he developed there on his forest. He is proud of it. He ought to be.

There developed a statement in one of our discussions that I am reminded of in connection with this problem. It was that "the situation gives the order." What order does it give us with regard to training? Does it say "training is a good thing, but there isn't time"? The articles I briefed for you, both emphasize the loss of time due to poor training. Training that does not save time is questionable training. However, with programs as full as they are, such statements seem unfair. Better training may save time next week or next month, but it is time right now, today, that concerns us.

But is time always a factor? Does better training necessarily mean more time? May it not mean better methods? May it not mean just avoiding some of the mistakes mentioned by Craig and Charters? May it not mean just better observance of the training techniques with which you are now familiar? I am asking questions, not answering them. Nor do I want to appear to criticize. The administrative man has no easy job. He has many other types of questions to answer.

Still another thing to consider is how to apply these training techniques to executive jobs. It is easy enough to apply them to manual jobs, but that is not where we most need training. When the job is inspecting a range, getting settlement from a trespasser, getting co-operation in protection, or contacting large numbers of tourists, how apply the "demonstration," the "trial," the "correction," etc.? Yet what better method is there?



Dr. Donald says that sometimes the best approach is a "difficult survey" rather than a job analysis. For example, you have a range unit where the administration is backward. The permittees do not accept the plan. The cooperation is poor. The administration takes too much time, yet results are poor. There are complaints and dissatisfaction. What will you do? Well, first look for "difficulties": Topography, poison, predatory animals, class or family feuds, old customs, prejudices, or unsocial individuals. Then, with the list before you, treat them one at a time, and train or help your man in finding ways to overcome them. Will it work? That is, is there any particular advantage in the method?

Donald says also that "instructional outlines" are necessary, otherwise the training becomes a hit-or-miss affair which is usually pretty ineffective. Three years ago you supervisors agreed that you should each keep a record of the training needs of each of your men in order that you might make your time in helping them more effective. I wonder how many have done it. Quite a number, I suspect, if you count memory records. They are all right if you can remember them.

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## QUESTIONS

What to ask you to discuss has bothered me somewhat. We cannot discuss whether or not it should be done, since we are all doing it now. We have discussed methods in the past. Anyhow, you know how it ought to be done, so that's out. What is there left? Time? Amount? Quality? About the only problem left open is how, amid the pressure for other things, are we going to be able to do a better job of training than we have done in the past?

1. Is the past satisfactory? If not, how improve? Time? Can we get it? Better methods? How? Better planning to enable us to train the man in what he most needs? A change in priorities? Can we build an incentive? That is, get men to make greater effort to learn?

2. "Everyone, if properly hired, is a potential candidate for advancement." Are we giving each man the help and encouragement and the opportunity to prepare himself for the degree of advancement of which he is capable?

3. What are your ideas about training for the Emergency Conservation Work?

## DISCUSSION No. 16

We did not get so many discussions this time, but we did get some valuable contributions to the subject. One thing that impressed me was the statement in one of the papers that the habit of making job analyses grows on one. For you know it is not just writing down the names for a series of acts; it is a systematic effort to find the best way. You work a job through step by step, examining every move, testing one way against another, until you are sure which is best and why it is best. The planting example is a good one. It is not just a case of teaching new men the result to be attained; one should teach them also every move necessary to attain that result in the easiest way. Slow men are sometimes slow not because their movements are slow, but because they make too many unnecessary movements.

These repetitive jobs, like planting, are of course the easiest. But the habit of looking for best ways leads to the examination of all sorts of jobs. As someone said, analyzing a ten thousand-acre fire leads into a lot of detail. It does. Go back and read lesson number 8 again and you will get some idea of how much. And the further you go into it the more convinced you will be that all these details are important and should not be neglected.

The intangible jobs need the most careful handling, but are you sure that method is impossible just because the factors with which you deal differ in every case? Have you read the book, "Influencing Men in Business"? The author stretches a point perhaps, but it does seem that men of influence have a method that shows itself in most any case they handle. Experience is perhaps the best teacher, but learning entirely from one's own experience is a slow, expensive process. Further, if one gets full value from his own experiences he must analyze them.

But what about initiative, when best ways are determined and standardized? Will men then become robots? This is a question that always bothers us. We need men with initiative who can see best ways without having them pointed out. How develop this faculty? It seems to me that emphasis on the use of best ways, which have been determined by tests instead of by rule-of-thumb, tends to develop initiative rather than discourage it. Arbitrary rules based on authority are discouraging. In our standards we should be careful to keep away from that, and I think we are. But the determined standard is different. It is a challenge. It invites you to find a still better way.

---

A. L. NELSON

NEBRASKA

HALSEY, NEBRASKA

1. Job analysis of the ultimate job is feasible, and is usually done where job training is complete. We may not stop to write our job analysis out in detail, but we think and attempt to explain in terms of steps to be done by the trainee. Therefore, why not make the job analysis the first or preliminary step of the training job? This should be done. If this is so, why don't we do it first? Maybe we do in outline form but not in the true sense of job analysis. A true job analysis of step-by-step operation is somewhat time consuming, and to write it down increases the time element. This, I have found, is an irritation, and is not planned for. We're too rushed to analyze each step, or we don't think



of the job of training in the light of job analysis at all. I am firmly convinced that job analysis is desirable and feasible, under normal working conditions. We practiced this method of preliminary job analysis in training crews of planters and some nursery laborers last spring and found that it paid dividends.

Prior to 1931, planting had been done by what is known as the trencher (slit) method, the slit being made by a trencher plow. Small areas, not economically planted by this method, were planted by the Michigan bar method. With the bar, the planter made the slit for the trees himself. This job had been analyzed and graphic illustrations prepared, but these were found inadequate, in 1931, when large scale bar planting was done. The Ranger in Charge explained the requirements of a well-planted tree, and showed how to use the bar. As the season progressed, he found that the fastest and best planters invariably used certain definite movements in planting, and that they did not seem to tire themselves. Upon analysis, he found that these movements were not being made by all the planters. The Ranger was analytically minded and anxious to get every tree correctly planted. Therefore, there was only one thing to do and that was to analyze the job of correct tree planting and require that all planters be trained in one method.

The analysis was made before the 1932 job training started, and all planters were trained to plant only one way, using 12 definite standard movements. The results were surprising. We got the best planting possible, with the supervision simplified and the planters knowing how to do the job right. It was a pleasure to inspect this job, as most of the time was no longer needed in correcting errors, but spent in analyzing other jobs, such as the foremen's, the cooks', the barnboss' etc. It really gets to be a habit.

In the Nursery, the same job analysis technique of training is used in training trencher men, threaders, transplanters, and there are many other jobs that need it.

2. I feel that analysis of the ultimate job is feasible, but will be difficult to get in general practice. One way will be to require an appendix to the job load analysis and plan to work to include analyses of the various jobs. The practice of analyzing final jobs, by Forest inspectors when on the Forests, will help to spread the use of this administrative tool. If they apply this method in their training work, we on the Forests will soon follow suit.

Before any real progress will be made, we must first get the Job-load Analysis and Plan made, accepted and in use by not only the ranger force, but the overhead staff as well.

3. Training in intangible jobs is difficult. I doubt if we can ever fully train along this line. We can only outline general theories of the case, but the trainee will need experience. To learn to swim, you have to go in and get wet. But the best swimmers are trained to use the best strokes. The coach gives them a "job analysis" to follow in training. We can likewise give aid through analysis of the problem confronting our men. The help will be appreciated, and the analysis will serve as a guide. This will cut the chances for error and failure to a minimum. Each man must get wet to work out his own details to



keep afloat, but training will get him on top at an earlier date than if he merely were told to swim or sink.

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F. J. JEFFERSON

MISSOULA, MONTANA

You ask, P. K., if analysis of jobs under normal working conditions is feasible as a preliminary step in job training. The answer is "Yes," but I'll go you one better in this question-asking business. Are not such analyses essential to the adequate development of the job control plans that an executive must use to stay on top of the present-day administrative job?

Let's take the Supervisor's job as an example. Consider what has happened in recent years to that poor devil.

1. A job load analysis was made (based on quite empirical decisions as to job volume and time requirements. We needed job analyses, but didn't have many of them).
2. Based upon the job load analysis, decision was made as to proper size of Supervisory force.
3. As a result of changing conditions the Supervisor on most Forests must face an upward job load trend with static or reducing man power.
4. His responsibility for acceptable attainment of both qualitative and quantitative standards remains unchanged.

That Supervisor is faced with the necessity of doing some pretty critical analysis of his own job if he stays on top of it. Time was when he could maintain close field contact with all Forest jobs and thus redeem his responsibility. "Quoth the Raven—'nevermore'!" We're in a high-speed era now, and the Supervisor must be a high-speed executive. High speed, however, doesn't mean rushing hither and yon, snatching decisions out of thin air. It means learning a new technique, that of using current performance records and production standards to a high degree as a substitute for personal contact with jobs. And right there is a fine chance to go wrong. Tons and tons of paper have been wasted in the writing of production standards and performance records that were not worth a "whoop," because experience proved them to be not devised properly to attain the hoped-for objective.

As a prelude to determining what form these working tools must take, it is quite imperative that the Supervisor analyze each Forest job and determine what his necessary relation to it is and just where and in what fashion he must participate in it to maintain his success as an administrator. Further, by analysis of his job needs, he must discover precisely what character of production standard will serve his particular requirements best as a measuring stick for each kind of job, and what features of a job need be set forth in current production records to give him the essential facts against which to lay the stick. The basic facts that he needs to give him a quick warning as to operations that may be "off key" must be laid bare. His reputation as a successful manager depends upon his promptitude in finding and acting upon these situations.

Understand, I am not attempting to minimize the desirability of personal contact with Forest activities. I'm simply stating a fact—that, on the one

hand, Forest jobs have multiplied and increased to a point where it is a physical impossibility to contact all of them, while, on the other, there still exists the need for adequate Supervisory control of each undertaking. The urgency of seeking out and applying new methods of administrative control that will give prompt warning of questionable situations should be obvious. Yet, today, men are swamped because of adherence to traditional methods of control. It is for this reason that I say job analysis and the development of up-to-date methods of job control are essential to staying on top of the job.

Administrative research is a much-discussed and somewhat tender topic. Yet, after all, what is administrative research except a feature of job analysis; a searching out of facts for use as measuring sticks in gauging the adequacy of production?

Only a day or two ago I talked with a man who was critical of a proposal to find out what a given size of crew could do on a certain kind of job. He said that the Supervisor should be able to decide by going over a job, whether production was good or not. He overlooked entirely the fact that modern demands upon the Supervisor's time destroyed all possibility of getting upon each job of this character on a Forest, and that something was needed that would give an index by which to judge the adequacy of performance on jobs that could not be contacted in person. The same man was skeptical about using current production records on this same sort of job—classed them as "burdensome paper work" not likely to serve a useful purpose, because the Supervisor couldn't be tied to his desk to review them. Again he overlooked a vital feature: the need for some sort of current control contact with jobs that ordinarily would not be visited; also the fact that such records could be routed to the Supervisor in the field, and need not grow dusty on his desk.

Why shouldn't a present-day Supervisor provide means for receiving in the field important data regarding current operations, and act upon them when received? Is there anything unbusinesslike or out of character about a Supervisor who stops for an extra hour or so at a lookout point (while on an inspection trip) to review the written record of the past months' performance of his rangers, spot the doubtful points, and discuss them immediately by phone with the officers responsible?

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J. W. HUMPHREY

MANTI

EPHRAIM, UTAH

From Hodgson's illustration of the breaking up of a job, it would seem to be fairly easy to make a job analysis of most of the problems we meet up with. I imagine some difficulty may be experienced where the job is new and where you are not too well acquainted with all the details. Some of the steps shown in job analysis may be unnecessary where you are thoroughly familiar with the work. For the jobs which are new, however, complete detail may be necessary to get results. Sometimes you may have a man that is slow when it comes to catching his horses, saddling, packing up and getting away from camp. It may not require a great deal of time on your part to discover whether the man is naturally slow or whether he is laboring under the handicap of poor methods. If he is naturally slow when it comes to handling horses, you may have to help



him in order to make a quicker getaway. If his methods are at fault, I am quite sure that if you will hold a watch on him and time the various steps in saddling and packing his horses, and then have him hold a watch on you while you do the same work, the effect of such an analysis of the time needed for the operation will, if it is possible for him to overcome his slothful ways, bring about a decided improvement.

2. I am sure that we should endeavor to develop efficiency in all of our men, at least for all jobs on which they spend a material part of their time. I say this, even though they may be willing and able, by putting in long hours and extra days to do the work in a satisfactory way. If they can become so efficient that they can save from 10 to 25 per cent of their time so that, instead of working 7 days per week at 8 or 9 hours per day, they could do their work in 5½ days per week of 7 hours per day, it would give them additional time for study, for recreation, or for other activities in which they may be interested. This, it seems to me, is worth while, since it prepares them for higher positions.

3. Training for intangibles, like training for jobs with which you are not too familiar, will no doubt be difficult. Careful study of any situation to be met is one of the first steps in the analysis of any problem. I am inclined to think that we often leave matters to take care of themselves instead of planning in advance the action that should be taken; after all, I wonder if some of the intangibles do not become much simpler after a thorough, careful analysis is made of them? Perhaps it is correct to assume that a careful analysis is necessary of the jobs that are difficult to handle, and since it is the intangible job, for which there is no precedent to guide your action, that gives you the greatest worry, the intangibles may perhaps offer the most profitable field for the application of the principles outlined for making an analysis as given in the lesson.

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HUBER C. HILTON

MEDICINE BOW

LARAMIE, WYOMING

Certainly the analysis of the ultimate job is feasible. No doubt old ways of doing familiar jobs will be continued in many cases, because of a natural inertia to make changes. We are making progress, however, but much of the progress occurs because of changed conditions. The advent of the portable saw-mill on railroad tie operations resulted in a change of scaling methods. The change occurred because of the excessive cost of old scaling methods, but when a change became advisable it was made only after an analysis showed what appeared to be the best way of doing the job; so where we formerly scaled every log from which a tie was produced, we now scale 100 average logs, determine the number of tie and sawlogs and use the average figures for two mill sets of from 500 to 1,000 logs each.

Whenever we have a new job to do, we have an excellent chance to analyze it and determine the best method. Last fall we had a job of insect control work to do of which we knew little except that, by experimentation for the first few days of the job, we found we could do the work without horses, could get a complete burn without rehandling, etc., where the first work done was very ex-



pensive, slow and tedious. Had an analysis not been made, the first method tried would have been continued and costs greater.

To put analysis methods in more general use will no doubt require first an interest in such methods on the part of the executives in charge to encourage others to analyze their various jobs. Something along this line is now being done by the analysis of positions of various officers, but this really breaks up into jobs. Perhaps the one best way for such analyses would be at training camps, where but a few jobs at a time should be analyzed.

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JOHN SIEKER

HARNEY

CUSTER, SOUTH DAKOTA

1 and 2. A job analysis could no doubt be made of any concrete job which would tabulate in an orderly manner the sequence of steps which a proficient man takes to accomplish it. I can see no reason why a trained analyst could not tear down any job into its component parts. By comparing the sequence of steps, as performed by workers of varying degrees of skill, it would be quite easy to determine the most efficient sequence and to eliminate lost motion.

An element of judgment, of course, enters into such an analysis. How fine a distinction is necessary in defining the steps? For instance, analyzing the job of picking up a hammer, would you say, (1) looks at hammer, (2) sets legs, (3) stretches forth arm, (4) bends body, (5) opens hand, (6) closes finger on handle, (7) straightens body; or would you say, (1) bends body, (2) grasps hammer, (3) straightens body?

The degree of refinement necessary to analyze a job properly might even have to be analyzed to determine the most effective refinement.

Each supervisor and his assistants should familiarize himself with a practical working knowledge of the principles of job analysis so that he may be qualified to make a competent job analysis and instruct others in improving their methods.

3. An intangible job, such as settling a fire trespass with an irate defendant, presents another problem. Many variable factors contrive to complicate an analysis of such a case.

I believe that the method used on many forests this year of having typical cases acted out is excellent and affords the proper training. Psychology and tact are of prime importance but cannot be standardized. The practice obtained in acting out a typical case is invaluable. Although such a case only simulates actual conditions, I believe much could be learned by having a stenographer take down the entire conversation. A study of this record would undoubtedly give much of interest in respect to (1) the psychology used and its effect, (2) the importance of introduction and extraneous material, (3) the method of getting to the point, (4) tactful refutation of the defendant's arguments or misstatements, (5) logic and judgment in driving home the necessary conclusions, (6) reaction to the defendant's moods and humor, (7) general reaction of defendant to whole affair.

It seems to me that an analysis of the general principles of psychology, tact, and approach is as far as we can expect to go. The selection of the method

of approach and the reaction desired must necessarily be determined for each case.

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C. L. VANGIESEN

ROOSEVELT

FORT COLLINS, COLORADO

I rather doubt the feasibility of an analysis of our many jobs on a whole-sale basis. In the first place, no two men will do a job with exactly the same operations. Let us hope that the performance of our work will not become so standardized that there will be no opportunity for individual initiative. Secondly, conditions vary so widely between Ranger Districts, Forests, and Regions that a detailed analysis of a job could not be applied generally throughout a Forest or Region. Unless trained job analysts could be assigned to the work, job analyses should be confined to a few jobs presenting the greatest problems. Administrative officers have insufficient time for any great amount of this work. The completed analysis of a job could readily be used in job training.

When one reviews Hodgson's analyses of very simple jobs with the large number of operations, one becomes somewhat amazed at the possibilities with complex jobs. One can picture a book resulting from a complete analysis of a job, such as controlling a thousand-acre fire. Would a person trained through the medium of an intensive analysis of one fire necessarily be properly trained to handle a fire under different conditions? Would an analysis of the technique of timber marking be of great value when one considers that every acre of the various timber types presents a distinct problem?

The analysis of intangible jobs presents an even greater problem. Let us consider the job of making public contacts. I feel that we could not analyze this work in detail, since each individual has a different method of approach and each member of the public requires a separate type of contact.

There are some possibilities in training by job analysis. However, I have a feeling that we should go rather slowly in adopting this type of training program.